The Bristol Medico-Chirurgical Journal

" Scire est nescire, nisi id me
Scire alius scierit."

WINTER, 1925.

CONTINUITY AND CHANGE.

The Presidential Address, delivered on October 14th, 1925, at the opening of the Fifty-third Session of the Bristol Medico-Chirurgical Society

BY

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IF we wish to discern the origin of all natural things we must take a wide view and look to the Heavens. The impression to the observer is one of movement, change and order. The planets move in the same direction, in orbits having approximately similar planes, with their axes inclined to those planes at a like angle, and at distances which have a numerical relationship (Bode's Law). The visible stars, largely aggregated in a circumferential view as the " milky way," are a teeming multitude in various stages of evolution, self-luminous. They are suns, perhaps with non-luminous worlds rotating round them. The spectra of the stars comprise three groups : (1) Those in which hydrogen, helium and magnesium are prominent, hydrogen predominating in

the brightest star Sirius; (2) those with strong metallic lines similar to the solar spectrum; and (3) those which suggest coolness and chemical combinations (hydrocarbons and metallic vapours), "the last stage of a sun—when it has cooled down." The nebulæ may be gaseous and irregular (Orion), or of appearance suggesting solidarity and orbital movement (Andromeda). The spectroscopic telescope has identified hydrogen in their spectra, and helium has been proved to be present in the nebula of Orion. It is significant that these two elements head the list in the atomic order.

Modern science teaches that the atom consists of a nucleus of positive electricity, circulating around which are negatively charged electrons which vary in number precisely with the position of the atom in the atomic scale. Hydrogen, the first, has one electron: the last on the list is uranium, with ninety-two electrons. The physical and chemical properties depend on the electrons. There are many possible orbits for the rotation of the electrons. That of hydrogen is most stable at the inner orbit; but the fine lines in the hydrogen spectrum reveal that there are other possible orbits; and when an electron passes from one orbit to another energy is given out which manifests itself as radiation. Helium has two electrons, circulating in different orbits; whilst lithium, the third on the list, has three electrons circulating in three orbits; and so on. The third electron of lithium has a very elliptical orbit, resembling that of a comet in the solar system. The orbits are always ready to fill up their complement of electrons. When the full number is incomplete the atom is less stable, when complete a very stable element is formed. For new elements to result from the addition of electrons there must be fresh groupings and the occupation of further orbits—at first unstable and later stable when the complement is full. A beautiful experiment is illustrated by Sir Wm. Bragg: magnets floating on water

arrange themselves in a circle around an electro-magnet in the centre of a bath. When additional magnets are added they float inwards and form a second circle.

From the classification of atoms according to the number of their electrons some new elements have been, and some remain to be, discovered. From the arrangement of atoms according to their groupings, based upon the satisfaction of the orbits by electrons and their physical characters, the elements of one group may be shown to have features in common with those of other groups, and the relationship indicated by connecting the related elements together by lines. The writer has found that zinc is a specific in syphilis. Now testing the table by this and other known remedies for diseases caused by spirochætes, arsenic, bismuth and mercury, it will be observed that zinc and arsenic (30 and 33) are related to mercury and bismuth (80 and 83) in the next group.

A remarkable change has occurred in our ideas of mass, which is not the constant unit formerly taught. Mass increases with the velocity. This was asserted in the theory of relativity (Einstein), and experiments have confirmed it. Since orbits are elliptical, both in the solar system and in the atom, the mass of revolving bodies varies with their velocity in different parts of the orbits.

The discovery of X-rays and Radium has afforded much information in minute structure. X-rays are transverse waves like ordinary light, but 10,000 times smaller and far more penetrating. They are not electrified, and are not deflected in an electro-magnetic field. When they fall on a sheet of metal they liberate electrons from the metal. The X-ray spectra of the elements follow the atomic numbers (not weights), and have led to the discovery of new elements. They help us to see the atom indirectly. Radium tells us what the atom does. It gives off helium. The a-particles

show the spectrum of helium. The helium atom from radium starts with a velocity of 10,000 miles a second, goes through the molecules it meets with, and completes its course in about three inches of air. By the induction of fog the track of the a-particles has been photographed; and, in rare instances, the impact between atoms when there has been a direct hit; although in most cases atoms go through one another.

When combinations of atoms produce molecules the mode of attachment tends to take on a definite form. Chemists have figured "ring" molecules and "chain" molecules for many years on theoretical grounds; and X-ray spectra have proved them to be a real basis of structure, except that molecules must be regarded as having three dimensions, not two as illustrated in books on chemistry. Carbon may exist as diamond or graphite: in the former the carbon atoms (each with six electrons) have the hexagonal ring arrangement; in the latter the chain. Diamond is very hard, whereas graphite is one of the best lubricants. X-rays have shown that graphite is a lubricant because the molecules are in chains or planes, with a wide separation between the layers. Soap molecules are described by Sir Wm. Bragg as standing on end with different atoms at the poles, the deeper poles having atoms which associate with other molecules. Thus molecules tend to cling in a definite way, and this is the foundation of crystalline form.

The photographic X-ray spectra of numerous substances have shown them to be of crystalline nature in internal design. Moreover, the construction of some crystals has been determined. Thus the quartz unit contains three molecules arranged in a screw-like form, dextro- or lævo-rotatory. In a few cases the X-ray spectrometer has decided the place of every atom in the unit of pattern. The atomic arrangement in metals, in gold leaf for instance, is in effect

crystalline ; and the line of fracture is between the crystals. The hardening of metals is effected by introducing substances which jamb the sliding planes of the crystals.

Many facts indicate that matter may undergo change or exhibit a degree of activity. Phosphorus and carbon exist in two or more forms. Iron rails gradually turn into steel under stress. Within certain temperatures tin may become a powder—the " tin pest " of organ pipes. Alloys of non-magnetic elements may be magnetic. Gold will diffuse through lead when the two are pressed together for long. Rocks undergo metamorphosis. Metals exposed to sunlight, or when rubbed together in the dark, may affect a photographic plate even through an opaque film.

Thus far we have traced the element, the atom, the molecule, the crystal, and the substance.

CONTINUITY AND CHANGE IN LIFE.

When what we call Life appears it is in association with a much more complex molecule—protoplasm ; and animal life is entirely dependent upon plant life. For the existence of plants there are three factors : sunlight, chlorophyll and the nitrifying bacteria. Diatoms, unicellular algæ containing chloroplasts, form the ultimate food of fish. In spring every square yard of the sea contains a million, and their flinty skeletons cover millions of square miles of the ocean bed.

There are several physiological processes in plants which resemble those in animals. They have no specialised lungs, but *respire* freely. They inspire through the stomata into air-spaces which expand under the influence of sunlight, and so take in CO_2 and O. They also absorb moisture through the roots and *transpire*, giving humidity to the atmosphere : an acre of wheat during its life-time gives off a thousand tons of water. Plants have a circulatory system comprising

tracheids, vessels and sieve-tubes, through which the liquid nourishment passes, and the carbohydrates built up in the leaf are conveyed into the stem through the veins. Their assimilation is of an order unequalled in the animal kingdom, for they can make protoplasm from inorganic material out of simple molecules containing two elements (H_2O, CO_2, NH_3). They manufacture complex proteins and carbohydrates for animal life to feed upon: and animals subsist by breaking those substances down, returning the disintegrated molecules back to the vegetable kingdom for re-manufacture. Water is absorbed by the roots, carbon compounds (sugars) are formed in the leaves, and nitrogenous material supplied at the roots.

Carbohydrates. Under the action of subdued sunlight upon chlorophyll (photosynthesis) sugar and starch are formed, probably through the intermediate production of formaldehyde. The sugar is for immediate use during the day, and the excess is stored as starch for conversion into sugar during the night. The process is analogous to the glycogenic function in animals. *Chlorophyll*, upon which animal life ultimately depends, is of particular interest to medical men, and a wonderful substance with the following uses :—

1. Photosynthesis in leaves.
2. Stored in the liver of many invertebrates.
3. Resembles hæmoglobin and probably its source.
4. Replenishes the O supply of the world.
5. Indirectly (through Hb) acts as the O carrier in higher animals.
6. It is the ultimate source of heat and energy used by mankind.
7. Produces the antirachitic vitamin A in the green leaf.

The last is akin to the artificial production of the vitamin by exposure of certain substances to ultra-violet light. They include cholesterol, milk, green vegetables and other foodstuffs. Indeed, rickets can be cured by ultra-violet light.

Proteins. The nitrogen supply to plants is chiefly due to bacteria. Using the sugar in leguminous plants, they are able to fix nitrogen derived from the soil and air. The nodules on the finer roots are composed of bacteria which are subsequently digested by the plant when using up the nitrogen fixed by the bacteria. Clovers, peas and beans are therefore employed for rotation of the crops. Some bacteria produce nitrites which others convert into nitrates, the chief source of nitrogen for green plants.

The continuity of life depends on sunlight, chlorophyll, and bacteria. Reproduction in plants is of two kinds: vegetative, as in the yeast cell, in which there is continuity without change; and sexual, in which variation, change and progress are possible by the interaction of sex. The sexual reproduction of plants is the prototype of the like dominant process in animals, and in plants and lower animals we find transitional forms. Cilia are found in the male reproductive cells of seaweeds and mosses, and in a fern the antherozoid swims through the water to the ovum like a spermatozoon. Alternation of generations can be traced in lower plants and in a few animals. The asexual spores under the leaf of a bracken fern drop off and grow into a prothallus which produces both ova and antherozoids. The ova and spermatozoa of jelly-fish produce an asexual generation, the hydroid, before the sexual generation again appears. Incubation occurs in flowering plants, the prothallus being hidden within the parent like an embryo, with a store of starch and protein to draw upon. Most plants and many animals are hermaphrodite. When a certain parasite infects the hermit crab ova appear in the testis and the male assumes a female

appearance. Sex may alternate. The oyster appears to be at first male, then female, and then male again. Parthenogenesis is common in plants. In some creatures males are unknown, in others (insects and lower crustaceans) there may be many parthenogenic generations before a male appears. In bees the queen and workers are products of fertilization, the males or drones are born parthenogenetically. Parthenogenesis may be induced artificially by feeding (paramœcium) or by employing extract of brain or pancreas. Certain unfertilized eggs can be made to develop to the larval stage by altering the saline constituents of the surrounding medium ; tadpoles can be produced by pricking frogs' eggs with a needle dipped in salt ; and the eggs of sea-urchins will give twins on altering the salts in the water.

Diesase is an abnormal change in the natural continuity of life, and our profession is concerned with a knowledge of what is normal and what is morbid. Human anatomy and physiology are largely comparative, and in the study of diseases, especially tropical ones, the life processes of other creatures have to be considered. Organisms like the amœba are examples of early specialization of function. Motility and prehension are provided by pseudopodia ; digestion is indicated by particles of food within the protoplasm ; there is a contractile vesicle which acts as an excretory organ ; and reproduction takes place by nuclear and cell division.

In the specialization of tissues we find continuity. Muscle and nerve are directly continuous in the embryo with little apparent differentiation between them. In the human adult the sympathetic nerve fibres of the sino-auricular node of the heart, and the plexuses of Meissner and Auerbach in the intestine are intermediate between muscle and nerve in appearance and physiological action ; it is impossible to say exactly where one begins and the other ends. In invertebrates some muscles are for action and others for tone or

posture. The researches of the late Dr. J. I. Hunter and others have shown that the dual type of innervation exists in vertebrates also, the skeletal muscles containing contractile fibres innervated by somatic nerves and fibres for maintaining tone or posture supplied by sympathetic nerves. Division of sympathetic rami communicantes has been proposed and carried out for selected cases of spastic rigidity; and in medicine "tone" has now to be distinguished as of two kinds, contractile and postural, ramisection being suitable for the latter only.

The relationship between the sympathetic system and the adrenals was summarised by the late Dr. W. H. Gaskell in the following words: "The sympathetic system arose from nerve cells containing adrenaline . . . when these cells left the central nervous system to become peripheral, they left not as single cells but as two separate cells, one of which contained all the adrenaline and formed the chromaffine system, and the other the nerve cells of the sympathetic system of the vertebrate." In a personal communication Dr. Gaskell wrote that he regarded the vertebrate brain as representing the liver of invertebrates. This takes us a long way back for the source of the cholæmic temperament of some individuals.

It is a remarkable fact, and an evidence of continuity, that when diabetes is produced by certain pancreatic deficiency, the need of the individual can be made good by Insulin derived from fish, just as myxœdema may be prevented by giving sheep's thyroid. Equally striking is the fact that the pituitary is concerned with growth in animals, and its extract increases the reproduction of the ciliated slipper animalcule (paramœcia).

The study of embryology explains the origin of certain diseases, particularly those associated with the mandibular slit and branchial clefts, dermoids, spina bifida and the like.

The opening of a meningocele, the sinus rhomboidalis of a fowl and the blastopore of an inverted unicellular organism are homologous. In the broad ligament of the female there exists the vestigial duct of Gartner, the lower part of which may give rise to cysts, particularly in oxen. J. H. Goodall has investigated this structure in cows, sheep, pigs, etc., and after examining some thousands of microscopic sections he concludes that the duct of Gartner is morphologically continuous with the tubules forming the ova. It would seem that the provision of a uterine incubation chamber in placentalia entailed the passage of ova by another route, viz. through the pelvic peritoneum to the Fallopian tube, although ova might have passed down the duct of Gartner just as the sperm passes down the vas deferens, in which case vertebrates in general could have continued to lay eggs and suckle their young, as is still done by a few.

The changes in life make for variation and progress. The individual has to die, that new and better life may be born. The advantage is often reciprocal. The embryo, forming the decidual cells from its chorion, burrows into the maternal tissues and contributes a large share to the formation of the placenta; and the offspring of Life gives birth to maternal affection in the parent, and in its day and in due time learns the true meaning of faith and hope and love.

So, in the life of a society, new and young blood gives fresh life to the body corporate, and we progress in the light of fellowship and the changes brought about by intellectual union.

SOME PROBLEMS IN PULMONARY DISEASE, WITH SPECIAL REFERENCE TO RADIOGRAPHY.

BY

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THE extent of information which may be derived from pulmonary radiography, also the limitations of this method, are worthy of consideration. Assuming that the technique for the production of satisfactory radiographs leaves nothing to be desired, difficulties of correct interpretation are responsible for a certain sense of disappointment, and tend to diminish the usefulness of pulmonary radiographs for many clinicians. Over-interpretation, *i.e.* the drawing of deductions which are logically unsound, from radiographs alone, is responsible for some of this disappointment and creates sceptics.

It should hardly be necessary to emphasise that radiography of lungs is a method to be used in conjunction with clinical signs and symptoms ; by itself the method is incomplete, and should seldom form the sole basis of an opinion. For instance, it is obvious that a single skiagraph showing well-marked shadows of pulmonary tuberculosis, can give no information as to the activity of the disease. On the other hand, several skiagraphs taken at intervals may show, by virtue of alteration in the shadows, that active changes are in progress.

One point on the technical side of pulmonary radiography : it is impossible to get good pictures showing satisfactory

detail in lungs except with practically instantaneous exposures. It is not enough that a patient can hold his breath for a few seconds. Heart movements cannot be inhibited similarly ; they are considerable, and are sufficient to blur the picture. Personally, I have never seen a good lung picture in which the exposure exceeded about half a second. In taking a chest for lung disease we do not want to see the structure of the ribs. Over-exposed, flat and blurred films are responsible for much of the dissatisfaction expressed by some as to the value of pulmonary radiography. A second point on the technical side : one should always insist that the picture shall include the whole of the lungs. Small films which do not show the whole of the intercostal spaces are valueless. It is in the peripheral parts of the intercostal spaces that we look for the mottling characteristic of pulmonary tuberculosis. Thirdly : it is desirable to take all skiagraphs in a standard position. If the position of the tube is varied, considerable alteration of appearances at the apices results and, further, it becomes impossible to compare satisfactorily skiagraphs of the same patient taken at intervals.

It needs to be emphasised that there is no such thing as a normal chest ; in other words, appearances differ widely in perfectly healthy people. The difference is chiefly in the amount of fibrous tissue. A good radiograph, by reason of the detail, will show proportionately more conspicuous shadows of the bronchial tree than will a flat over-exposed negative. If this is not recognised we shall be confronted with the suggestion that every patient, who obtains a good skiagraph, is suffering from fibrosis, which is manifestly absurd.

Pulmonary fibrosis is one of the problems I wish to raise for discussion.

I may say at the outset I am a complete disbeliever

in the interpretation of striation in pulmonary radiographs as indicative of pathological fibrosis. Such a conclusion from radiographic shadows is an unjustifiable deduction.

The clinical signs of fibrosis are chest deformity, in the form of shrinkage or falling in of the chest wall, cough and dyspnœa. Shrinkage includes, of course, displacement of internal viscera.

To appreciate all that is involved one must turn to the essential significance of cough as a symptom. Why does anyone cough? Fundamentally it would appear the cough is a physiological response to some degree of obstruction in the air passages anywhere between and including air vesicles and larynx. We may for the moment neglect certain reflex causes of cough, *e.g.* wax in the ears.

I believe that in every case of pulmonary tuberculosis cough is a constant symptom, though it may be insignificant and denied by the patient unless the matter is carefully inquired into.

The invasion of the wall of a bronchiole by a spreading tubercle results in an obstruction to the air-way from a neighbouring air vesicle, with resulting broncho-pneumonic catarrh and the formation of a yellow tubercle. This is productive of a short spasmodic cough. The X-ray appearance is stippling in the lung.

But this stippling is not pathognomonic of tubercle, for it occurs just as obviously in pneumokoniosis and even in simple bronchopneumonia. The actual truth seems to be that stippling is an index of terminal vesicular catarrh, —bronchopneumonia, if you prefer the term—and this is the only deduction that may be drawn from X-ray appearances.

In cases of pneumokoniosis the process is extremely chronic, and the X-ray appearances are characteristic, in that wide-spreading lesions, originally bronchopneumonic areas, come to be pervaded by dense fibrous plaques which

are very obvious in skiagraphs. Such huge masses are seldom seen in pulmonary tubercle; because an extensive invasion with the tubercle bacillus usually brings death long before the protective response in the form of fibrosis can appear to the high degree seen in pneumokoniosis. One is forced, then, to the conclusion that pulmonary tuberculosis and pneumokoniosis yield shadows that cannot with certainty be distinguished by X-ray appearances alone.

Radial peribronchial striation causes no deformity of chest wall, no displacement of viscera, no obstruction to the air-way, and therefore, *per se*, no cough. It is usually not a sign of pulmonary fibrosis in any pathological sense, but merely an index of increasing years, and comparable to the gradual development of arteriosclerosis.

One would not be so keen to raise this question were it not that the fallacy is costing the country thousands of pounds a year in pensions to ex-soldiers, in addition to which there is the serious mental effect on men who have been taught to consider themselves invalids on no better evidence than the presence of striæ in a radiographic picture.

The position of the tracheal shadow is always worthy of attention; it should be visible in every skiagraph, and normally, of course, occupies the mid-line. Its upper part is occasionally displaced by a goitre to such an extent that the details of the larynx are visible. Deviation of the lower part of the tracheal shadow is often a sign of pulmonary fibrosis. Naturally deviation indicates asymmetrical fibrosis. It is a frequent accompaniment of pulmonary tuberculosis or pneumokoniosis, and is an index of chronicity. Sometimes a patient gives only a short history of failure of health, suggesting that the present illness is the first breakdown from tuberculosis. However, well-marked deviation of the trachea indicates that probably he has been the subject

of a previous attack, possibly years before. This deduction will carry some weight also in prognosis, because it indicates that the patient possessed a relatively good resistance in the past, and may reasonably be expected again to respond well to treatment.

Incidentally the degree of tracheal displacement is a useful check on manometric readings, when judging the mechanical effects of increasing intrathoracic pressure in treatment by artificial pneumothorax. The trachea shows the effects of pressure more readily than the mediastinum generally, at any rate the displacement of the trachea can be more readily detected. It is possible to maintain good pulmonary collapse without displacing the trachea. If this rule is observed some of the difficulties and discomforts associated with the maintenance of an artificial pneumothorax, particularly on the left side, can be avoided.

Gross displacements of the mediastinum are usually obvious. Unilateral, uniform opacity, associated with mediastinal displacement is generally diagnostic of fluid. Sometimes malignant disease, *e.g.* lymphosarcoma, may produce a uniform opacity on one side of the chest, but such a condition does not usually displace the mediastinum.

The X-ray appearances of fluid in the chest deserve further mention. A simple effusion never presents a clearly-defined upper level. The appearance of fluid exhibiting a clear-cut, straight line is pathognomonic of gas plus fluid in the pleural cavity. The free mobility of the fluid when gas is present is very characteristic in a screen examination. Hydrothorax occurs rather frequently in cases of artificial pneumothorax and should be looked for. Sometimes such fluid undergoes spontaneous absorption.

I know of no X-ray appearances by which we may distinguish between serous effusion and pus. The distinction is to be based on other evidence.

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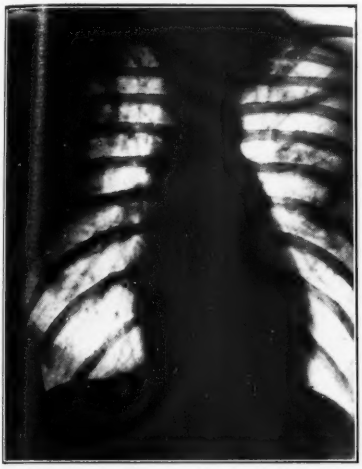
Perhaps the grossest displacements of the heart and mediastinum are associated with chronic fibroid phthisis of long duration. Such displacements are always associated with well-marked falling in of the intercostal spaces on the affected side. The heart may be drawn over to such an extent that there is no heart shadow lying in front of the vertebral column.

I wish now to pass to a discussion of appearances in the region of the hilum of the lung, together with the shadows of scattered intrapulmonary glands. Hilum shadows are present in early childhood and increase with age, as a consequence of the relative increase in fibrous tissue. Even dense hilum shadows are without pathological significance *per se*, and should never form the basis of a diagnosis of fibrosis. This has already been discussed in dealing with fibrosis; but the presence of clearly-defined glands at the hilum and in the substance of the lung requires more consideration. Personally I regard the presence of opaque glands very much in the same light as I view the von Pirquet reaction. They represent in many cases old obsolete reactions to past infections. Everyone acquires infection with the tubercle bacillus and undergoes immunising reactions, in which lymphatic glands play a prominent part. The presence of opaque glands must not be interpreted as evidence of broken-down resistance past or present. Supposing the glandular barrier fails, infection is carried by the lymphatics, interlobular, peribronchial or perivascular, to the peripheral parts of the lung distal to the intrapulmonary glands. Here bronchopneumonic lesions develop, and are seen as characteristic stippling in the peripheral parts of the intercostal spaces. We are led to the following position if my interpretation be correct, that opaque glands *per se* are not to be taken as evidence of clinical tuberculosis. But if peripheral stippling is also present the glandular

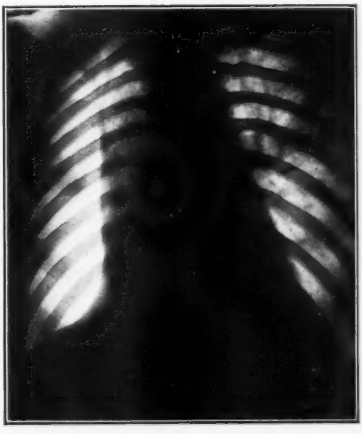
PLATE XIII.



Normal lung with unusually well-marked striation.

Pulmonary fibrosis from a case of silicosis. Note falling together of intercostal spaces.

Silicosis showing plaques of fibrous tissue.



Pneumothorax.

Large effusion. Note displacement of mediastinum.

Malignant disease. Note mediastinum is not displaced, owing to adhesions

Acute tuberculosis.

Hydrothorax. Note the clear line of demarcation between gas and fluid.

barrier has broken down. It should be emphasised that peripheral stippling is the earliest radiographic sign of pulmonary tuberculosis. It is best seen in cases of miliary tuberculosis.

Turning now to the appearances of cavities in the lung in skiagraphs, it is by no means uncommon to see reports stating that cavities are present in cases which exhibit no clinical signs of cavitation. The truth seems to be that while all cavities are visible in good radiographs, there are a number of shadows which by their enclosed outline or roughly circular conformation may suggest cavities. The origin of these misleading shadows is quite uncertain. I think that some of them, at any rate, are formed by the churning action of mixed cardiac and respiratory movements upon plastic lymph thrown out on the surface of the lung. It will be a safe rule never to diagnose the presence of a cavity on X-ray appearances alone. Of course, thick-walled cavities may leave no doubt as to their nature, but in such cases other clinical signs will correspond.

The accurate localisation of cavities by X-rays is important in relation to certain forms of treatment which will be referred to later.

One important point in diagnosis emerges from the consideration of radiographs, namely that pulmonary tuberculosis even in its early stages is by no means always, I might almost say usually, the apical disease that we are taught to believe. Discussions, therefore, about alleged mechanism of apical infections do not really matter much. Perhaps it is true to say that the detection of the disease by physical examination is easier at the apices. Further, in the comparatively cramped space of the apices the pathological process early in the disease produces more crowded lesions and therefore relatively more destruction than in the more spacious areas of lung remote from the apex.

Pulmonary conditions other than those mentioned produce characteristic appearances. For instance, emphysema produces thin pictures with wide spacing of the ribs, the latter taking up a horizontal position.

Bronchiectasis is not, as a rule, well seen by X-rays unless there is a preliminary instillation of some radio-opaque substance, *e.g.* lipiodol. I have no experience as to the effects of aspirating nebulised opaque fluids for this purpose. The practical point with reference to the radiography of bronchiectasis is that unilateral cases can and should, I think, be treated by artificial pneumothorax. The benefit to the patient by this method in unilateral cases may be very real. Sputum may be reduced from a matter of, say, 6 oz. to an entirely negligible quantity. At the same time the treatment of bronchiectasis by this method is not free from risk. Only recently I have had a case in which, after an apparently quite successful induction of pneumothorax an empyema occurred, evidently from the breaking down of adhesions. As far as my own personal experience goes I have had no similar instance of infection following induction of artificial pneumothorax in tuberculous cases.

Turning more particularly to the value of X-rays as an adjunct to treatment, the problem of artificial pneumothorax calls for consideration. The indications for treatment by this method are a high degree of activity in unilateral cases. The value of X-rays in the selection of cases is quite obvious. However, cases in which the possibility of treatment by artificial pneumothorax arises are seldom truly unilateral. The problem presents itself in the following light: Is the proportion of active disease so overwhelming in one lung that, if the said lung can be immobilised, a very high proportion of existing toxæmia can be cut out, thus enabling the system to cope with any small residual amount of disease which may be present in the relatively sound lung?

In the selection of cases radiographs will indicate those which are quite unsuitable, either by reason of the bi-lateral extent of disease or by showing up the signs which go to indicate extensive adhesion. The latter may be presumed to exist where gross displacements of the mediastinal structures and the falling in of the intercostal spaces are present. Further, prior to induction of artificial pneumothorax it is desirable to know whether one is likely to meet with an area of normal pleura free from adhesion. Here, again, the value of X-rays is perfectly clear.

While for purposes of continuous treatment by artificial pneumothorax cases must be selected on the unilateral basis, the same desideratum does not apply to the use of the method as a hæmostatic. Artificial pneumothorax is one of the most efficient means of controlling hæmoptysis. The one point of prime importance is that we shall know from which lung the hemorrhage is occurring. It matters little or nothing that the opposite lung be free from disease, because in the ordinary way the treatment will not be persevered in once the danger of further bleeding is past. The advantage of artificial pneumothorax as a mode of arresting hemorrhage is that in the first place it prevents the spread of blood by means of the bronchial tree to parts of the lung hitherto not infected. The second great advantage is that nursing is greatly facilitated. The patient can be turned and moved about with safety, and food can be administered with much greater freedom than can be done in the case of treatment of hæmoptysis by older methods.

The appearance of pulmonary cavities in radiographs has already been discussed. From the surgical standpoint the localisation of cavities by X-rays is of considerable importance. The successful drainage of pulmonary abscesses is a case in point.

On the Continent cases with well-marked cavities are not infrequently treated by local compression where general compression of the lung by artificial pneumothorax cannot be achieved owing to adhesion. The success of such local surgical procedures is largely governed by radiographic records.

THE PHTHINOID CHEST.

All of us are familiar with individuals presenting that poor type of physique usually designated the phthinoid chest: flat in front, kyphotic behind, narrow transversely, and long from above downwards, possessing poor expansion and cubic capacity. This type of chest has been associated with consumption in the minds of clinicians from the time of Aretaeus.

The physical signs on examination and the general appearance of the patient are so suggestive that they frequently lead, to say the least of it, to a premature diagnosis of pulmonary tuberculosis.

In my opinion the genesis of the phthinoid chest is to be found in enteroptosis. The subjects of this type of deformity practically invariably suffer from enteroptosis and a narrow "dropped heart" well displayed in radiographs.

I suggest that it is the general dropping of the abdominal contents which pulls down the lungs and diaphragm in their wake. In consequence expansion in the upper part of the chest can only occur by carrying and overcoming the overload of the abdominal contents. This is more than the enfeebled frame is equal to. The lungs at the apices, therefore, become permanently deflated and the breath sounds take on a bronchial character. The latter, associated with poor resonance and poor expansion, leads to the frequent diagnosis of "infiltration at both apices," a deduction which is quite unsound.

I should like to state in emphatic terms that in the case of a patient with a phthinoid chest no diagnosis of pulmonary tuberculosis should be made in the absence of post-tussic crepitations or of unquestionable corroborative evidence of tuberculosis from the sputum or X-rays.

This account of pulmonary radiography is incomplete by reason of the omission of all reference to appearances visible on the fluorescent screen. The omission is intentional, not because the subject is unimportant, but because the problems raised by such examinations cannot well be demonstrated apart from the presence of the patient, the dark room and the apparatus at work. While the value of the screen examination is fully recognised, it may be well to mention certain possible sources of error. It is usual to hear great stress laid on the significance of deficient movements of the diaphragm and poor illumination of the apices of the lungs as an early sign of pulmonary tuberculosis. It should be remembered that these two signs are in some degree present in practically every case of phthinoid chest, simply showing under what unfavourable conditions such a chest has to work. The signs, therefore, do not in themselves indicate the presence of pulmonary tuberculosis.

DISCUSSION.

DR. BERGIN said that, while agreeing that peri-bronchial infiltrations are usually not indications of tuberculosis, he believed they were often indicative of early pathological changes. He did not agree that, if the upper level of fluid in a chest appeared as a line, gas was present; it was exceedingly common to see the upper level in this way. He thought that one could sometimes definitely state after seeing a skiagram that a cavity was present, although none could be found clinically.

DR. MAYES maintained that often X-ray diagnosis of tubercle could be made long before clinical signs enabled this to be done. He attached importance to diminution of diaphragmatic excursion; this meant a gross lesion of the lung. He emphasised the importance to be given to shadows in the outer third of the chest area; in the medial third shadows were not uncommon. The more dense and definite a shadow the less active the condition causing it.

DR. EDGEWORTH described a case in which good health was interrupted by a sudden hæmoptysis. No physical signs appeared, except loss of diaphragmatic movement, revealed by skiagraphy. Three weeks later an apical friction was found. Sanatorium treatment was successful.

DR. SYMES thought that "skiagraphy shows too much, rather than too little." He had never seen a case with no symptoms or physical signs in which a skiagram helped a diagnosis of phthisis. He agreed that the diagnosis of cavities should not be made by skiagraphists, and thought they were inclined to see more on their films than existed in the patient. He was interested to learn of the tracheal deviation as a new and helpful sign, and asked whether there was any means of diagnosing adhesions by the X-ray.

MR. WALTERS related a case in which a definite upper level of fluid was seen. No empyæma was found, but at operation a lung abscess was discovered.

DR. NIXON regarded this method as of great importance in the *routine* examination of the chest, and sketched a systematic procedure for such examinations. Screening was important. He agreed that striæ did not necessarily indicate tubercle, and that " cavities " diagnosed

by skiagraphy often did not exist at autopsy. But a similar mistake was not unknown when physical signs were relied on.

Dr. Carey Coombs thought that a linear upper border of fluid did appear when no physical signs indicated gas, and suggested that we might have to reconstruct our ideas on intra-thoracic physics ; this promised an interesting research. The great value of X-rays lay in their help in showing the position and extent of lesions.

Dr. Carleton, in reply, said he believed there was one sign of a cavity which was reliable, namely a semi-circular area of which the straight side was influenced by gravity, and which could be made circular by coughing up the contents. In regard to the line above fluid, he meant a clear-cut definite line, about which there was no mistake, this was pathognomonic of gas. When screening a chest the eyes should be fully accommodated to darkness, and minimal illumination was useful in bringing out slight differences in transparence. Defective movement of the diaphragm was a sign of pleurisy, not of tubercle. He wished to mention that artificial pneumothorax was the best method of arresting hæmoptysis.

THE PRACTICAL IMPORTANCE OF POSTURE IN THE PHYSICAL EXAMINATION OF THE HEART, WITH SOME REMARKS ON STETHOSCOPES.

BY

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MANY years of observation have made it abundantly clear that the effects of posture on the cardiac physical signs are matters of great importance, whether in the first diagnosis of a case or in the subsequent following of its fortunes. The old advice, sound though it was, to examine all hearts both in the erect and recumbent positions, had so little argument attached to it that practically no one regarded it. To-day there is so much good reason to back its repetition, that nothing but defective hearing can account for its neglect.

I propose briefly to summarise here the chief practical results arrived at since 1902. The dulness I am speaking of is sometimes called "the deep dulness." The so-called "superficial dulness," indicating the area uncovered by lung, has little practical importance. In "change of posture" I confine myself to the change from the erect to the recumbent and *vice versa*.

THE SIZE OF THE HEART.

There are few things more necessary to determine in a case of heart disease than the actual size of the heart. I think no one will dispute this. Therefore it must be desirable

to know how best to determine it. So I begin with the following :—

1. *The size of the heart, in the great majority of cases, can only be satisfactorily determined by percussion in the erect position.*

One sometimes sees it stated that the size of the heart is best determined by inspection and palpation. But in many cases the apex-beat is not palpable ; and although marked epigastric pulsation may indicate an enlarged right ventricle, it cannot tell us the extent of its enlargement. Again, though a general precordial heave (or, in children, a precordial bulging) points to a large heart, it does not define its limits. Finally, and especially, neither inspection nor palpation can give, in the great majority of cases, the slightest clue to the real position of the right border of the heart, nor can they distinguish between cardiac enlargement and displacement. Therefore by percussion only, of physical signs, can the size of the heart be satisfactorily determined in the great majority of patients. The sole alternative, X-ray orthodiagraphy, is at present only available for a small minority of cases. Even when pulmonary emphysema is present, it is surprising what approximate results percussion can give.

But in the recumbent posture matters are very different. In that position both borders of the heart tend to drop away from contact with the anterior chest-wall ; the thicker-walled left ventricle slightly, the thinner-walled right ventricle (especially when distended and heavy with blood) greatly. So that we arrive at the following conclusion :—

2. *In the recumbent posture, in the great majority of cases, percussion cannot satisfactorily determine the size of the heart and, on the right side, may gravely mislead us.*

A distended right ventricle may actually give no indication

of its enlargement when percussed out in recumbency. Only in two sorts of case have I found the cardiac dulness identical in the erect and recumbent postures, viz. (1) where a heart is so large that it is wedged between the sternum and the spine, and (2) where a heart is pinned against the anterior chest-wall, either by adhesions in front or by pressure from behind.

Now to illustrate the foregoing.

Fig. 1 shows how closely an enlarged heart can be mapped out by percussion in the erect position. The thick straight lines are the X-ray shadows of copper wires fastened on the chest-wall over the pencilled limits of the percussion-dulness ;

FIG. 1.

Marked and photographed both in the standing and recumbent positions. Only the erect heart outlines are given.

the thin curved lines are the outlines of the cardiac shadow on the screen. The same figure shows the failure of percussion in the recumbent posture, especially on the right side.[1]

Fig. 2 shows the usual relations of the cardiac erect and recumbent dulness to each other in a normal person. The difference between the limits of dulness on the left is usually

[1] Exact percussion needs no exceptional powers. I have seen too many indifferent percussers learn to percuss well to have any doubt on that subject. Good percussion simply requires constant practice and close attention. Unless there is defective hearing or unhappily constructed fingers, it is within the reach of anyone.

about a quarter of an inch; the difference on the right is generally from half to three-quarters of an inch.

Fig. 3 shows the same relations in a case of dilated heart. Here the differences may be very great. In three cases

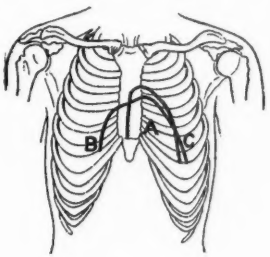


FIG. 2.

Normal heart dulness; inner area A dulness in recumbency; B C outline of dulness in erect position. The latter is somewhat wider than usual.

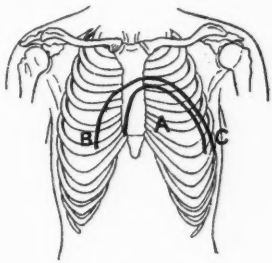


FIG. 3.

From a case of hypertrophy and dilatation of the heart. A inner area, dulness in recumbency. B C the outline of dulness in the erect position. B C is not always higher than A.

which I have instanced the differences in the total width of dulness were as follows (in inches):—

	Erect.	*Recumbent.*
Case A	9	5
Case B	$8\frac{1}{4}$	$4\frac{1}{2}$
Case C	8	5

Such total differences are nearly always due for the most part to the changes in the rightward limit of dulness. At the left of an enlarged heart there is rarely more than an inch of difference between the limits of the dulness in the two positions.

We are thus forced to the third conclusion, that:—

3. *A diseased heart must be always examined in the same posture, if possible in the erect posture.*

It is obvious that if the three patients above referred to had been examined, sometimes in the erect posture, sometimes

in the recumbent, indiscriminately, the greatest confusion must have been caused in one's judgment of their progress.

THE LEVEL OF THE HEART.

In some cases the heart drops abnormally in the chest when the erect position is assumed, so that the apex-beat, which in recumbency is found in the fifth space, is found in the sixth space when the patient stands ("cardioptosis"). I have seen such a case mistaken for dilatation. In order to avoid this error :—

4. *The position of the apex-beat should be observed in both postures.*

MURMURS.

1. *Organic.*

A little while ago the announcement that murmurs were of no importance, that so long as the cardiac muscle was sound the valves were of little account, and that our stethoscopes might be scrapped, was acclaimed with some enthusiasm. However, the hope proved delusive. The stethoscope has come back into its own, and we have witnessed the unobtrusive rediscovery of mitral stenosis and aortic regurgitation, with murmurs which matter very much. After all, cardiac sounds demand as much attention as other phenomena of disease. I would therefore emphasise the following :—

5. *Organic systolic murmurs are nearly always loudest in recumbency, and are sometimes only heard in that position.*

Mitral regurgitation is a typical example. When in doubt as to the existence of a mitral murmur, it is wise to always re-examine the patient recumbent. Fig. 4 shows the area of a mitral murmur which could be only heard in recumbency.

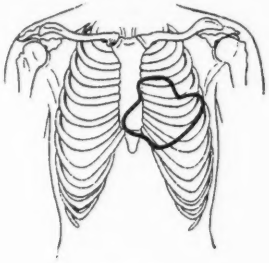
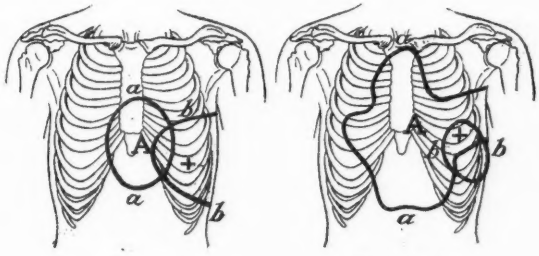


FIG. 4.

Area of systolic mitral murmur after acute rheumatism in the recumbent position. The murmur was inaudible in the erect position.

6. *The murmur of aortic regurgitation is practically unaffected by change of position.*

The occasional importance of this fact lies in the power which it gives us of distinguishing between a diastolic aortic murmur and a soft diastolic friction sound. The sound of friction, as is well known, sometimes vanishes on change of posture from erect to recumbent or *vice versa*. I have recorded a case in which it was possible, by means of this difference, to arrive at a correct diagnosis otherwise impossible.



Erect. *Recumbent.*

FIG. 5.

From a case of mitral stenosis. aa, Area of systolic murmur; A, its point of maximum intensity. bb Area of pre-systolic murmur; + position of apex beat which drops in erect position.

7. *The pre-systolic murmur of mitral stenosis, on the other hand, may be sometimes only audible in the erect position. It is the only cardiac murmur which has this peculiarity. But there are instances in which this murmur is better heard in recumbency.*

Fig. 5 illustrates a case in which posture modified the area of audibility (*i.e.* the loudness) of pre-systolic and systolic mitral murmurs in opposite directions.

2. *Hæmic Murmurs.*

8. *Hæmic murmurs are even more markedly affected by posture than "organic" murmurs, often becoming greatly louder in recumbency.*

So much is this the case that it has some value in diagnosis. A systolic murmur faintly heard in the erect posture, which becomes *extremely* loud in recumbency is generally "hæmic."

3. *"Respiratory" murmurs.*

9. *So-called "respiratory" murmurs commonly vanish on recumbency.*

This is a useful fact and, in conjunction with the other recognised characteristics of these murmurs, enables us to distinguish them from those which are "organic."

STETHOSCOPES.

Lastly, let me add a few necessary words about stethoscopes. The important early work on cardiac physical signs was done before the advent of the flexible binaural stethoscope, and one cannot but suspect that the later slowing of progress in our knowledge of these signs is partly owing to the imperfections of that instrument. However, one must be just; and it is certain that the flexible binaural stethoscope has also its advantages. I would sum up the differences between the two instruments thus:—

(*a*) Some people can scarcely hear anything with a straight wooden stethoscope.

(*b*) On the other hand, some people hear very little through their binaural stethoscopes, because the ear-pieces do not fit their ears.

(*c*) The straight wooden stethoscope can detect a slight aortic regurgitant murmur which the flexible stethoscope cannot. This is not rare. Here I would recall the fact that sometimes an aortic regurgitant murmur may be inaudible through both instruments, yet be audible to the unaided ear laid direct on the chest. The French are wise in using such "immediate" auscultation much more than we do.

(*d*) The flexible stethoscope often makes a mitral systolic murmur more distinct than the wooden one does.

(*e*) For tracing the "conduction" of a murmur, for determining its point of maximum intensity on the chest, and for comparing its intensity from time to time, the flexible stethoscope, whose adaptation to one's ears varies with movement, is less reliable than the wooden one.

(*f*) (Although not a heart question, this needs mention in this comparison.) In a lung case the flexible stethoscope appears to have the power of penetrating more deeply into the lung, and so of picking up deeply-produced sounds which the wooden stethoscope may wholly miss. Therefore we come to this last result, viz. :—

10. *We should use both the straight wooden and the flexible binaural stethoscopes as a routine in examining our cases.*

In conclusion, let me urge the certainty that percussion and auscultation are as important to-day as they ever were, before the advent of additional methods of investigation, and that to the older use of them must be now added the knowledge of those important changes in their results which are produced by change of the patient's posture.

Reviews of Books.

Arteriosclerosis : A Summary View. By the late Right Hon. Sir T. CLIFFORD ALLBUTT, P.C., K.C.B., M.A., M.D., etc. Pp. viii., 108. London : Macmillan & Co. Ltd. 1925. Price 5s.—This little book is worth a good deal more than many large monographs. In the first place, it expresses the considered views of the greatest English physician of his day on a subject to which he had given much thought. Secondly, it exemplifies wonderfully that combination of erudition with humility that made Sir Clifford Allbutt so great a teacher and so charming a man. Finally, it is his last work. As Sir Humphry Rolleston tells us in his prefatory note, it contains references to papers which appeared only a few weeks before the author's death. In its pages the work of men sixty years junior to its author receives a courteous and even respectful consideration, from a man in his ninetieth year, who speaks of Johnson, Gull and Sutton as his contemporaries. We doubt whether there is any finer example of the spirit of scholarship in medical literature, and as such we commend it to every student of medicine.

The Chemical and Physiological Properties of the Internal Secretions. By E. C. DODDS, Ph.D., B.Sc., M.B., B.S., and F. DICKENS, M.A., Ph.D. Pp. xii., 214. Oxford Medical Publications. 1925. Price 8s. 6d.—As the authors state in their preface, this book owes its publication to the fact that no single volume contains the chemical aspects of endocrinology, at least none written in this language. The collection of the many processes for isolation, synthesis and tests into one volume, it is hoped, would save researchers much time and translation. In order to catch the interest of the relatively numerous non-researchers, a summary of the physiological aspects was added. As regards their main object, the authors deserve congratulation ; this part is very full, and no omission of scientific importance has been noted. The absence of one hydrogen atom in the formula on page 127 appears to be a misprint. The physiological aspects, however, do not deserve the same praise : thus on the thyroid only one and a quarter pages are expended, and as a result much is omitted, even the relationship to tryptophane, a point which should appeal to chemists. On insulin the theory of Laufberger, which appears best able to explain its action, receives no mention ; another factor of importance and of interest to chemists, the role of

hexose-phosphoric acid in the metabolism of glucose, is not noted. The unexplained action of ergotoxin (page 36) is what would be expected from the experimental work on this substance. The main action of tethelin, its growth stimulating action, would appear to be due to vitamin rather than definite hormone activity, if the work of Deutsch is correct. The mode of secretion of pituitrin, left as undetermined, scarcely deserves such a fate when the experimental work of Trendelenberg and Rémy Collin is put in the balance along with that of Cushing. The galactogogue action of pituitrin is regarded as being of clinical importance; the work of Hall and Sutherland and others has shown that this action is purely temporary and of real value. Much recent work is not given attention; thus, of the 120 references on the pituitry, only 31 date from 1918. Altogether the book is very ill-balanced; the chemical features are relatively too full, and the physiological aspects are badly scamped, yet it is the latter which will pay for the publication. It is suggested that if a second edition is called for the lesser important chemical questions, many of which have only a problematical historical value, might be omitted to allow for the expansion of the really important scientific facts of the physiologists.

Alcohol in Medical Practice. By COURTENAY C. WEEKS, M.R.C.S., L.R.C.P. Pp. viii., 186. London: H. K. Lewis & Co. 1925. Price 3s. 6d. net. — Whilst the evolution of medical opinion in respect to the medicinal use of alcohol is the main theme of Dr. Weeks' book, there are also chapters devoted to the value of alcohol in pneumonia, in circulatory disease, in dyspepsia, in the diseases of children, in shock, and other surgical conditions. A most valuable series of appendices gives tables showing the amounts spent in alcohol by hospitals, infirmaries and sanatoria. The steady fall in the money expended on wines and spirits throughout hospitals in the United Kingdom is well illustrated, for instance, by the figures referring to our own General Hospital. In 1900 the total expenditure on 2,269 patients was £101, whilst in 1923, with 4,450 patients, and in spite of the greatly increased price of liquors, the expenditure was £78. The very wide variation in the amount of alcohol given in hospitals, which should be fairly comparable, shows, however, that there is much promiscuous prescribing, and that alcohol is not scientifically administered in the way a potent drug should be. The old tradition which regarded alcohol as a stimulant is slowly dying out, but further investigation is needed to ascertain its true value as a narcotic and as a food. Dr. Weeks does not conceal his own views as to the use and abuse of alcohol, but he has written in a broad

and scientific spirit, and his book will be read with great profit by all students and practitioners of medicine. It is full of valuable information and reference to recent scientific work on alcohol, and will do much to influence medical teaching and medical practice.

Vital Capacity of the Lungs. By J. A. MYERS, M.S., Ph.D., M.D. Pp. 119. Baltimore: The Williams & Wilkins Co. 1925. Price 16s. 6d. net.—Dr. Myers has done well to put together this short account of the measurement of the vital capacity of the lungs and its application to clinical medicine. The book can be read in the course of an hour or so. There is a good list of references. The price seems rather excessive.

Abdominal and Pelvic Surgery for Practitioners. By RUTHERFORD MORISON, Hon. M.A. and D.C.L., Hon. LL.D., M.B., F.R.C.S. (Ed. and Eng.). Pp. x., 212. Humphrey Milford, Oxford University Press. 1925. Price 8s. 6d. net.—What Rutherford Morison writes is always well worth reading, and this small and unpretentious book is no exception to this statement. Its title perhaps is a little misleading, because one usually expects a book dealing with Surgery to be concerned mainly with treatment and operations. But this is intended as a guide to diagnosis, so that dangerous or fatal delay in the recognition of disease may not occur. This early diagnosis the author holds should be the function of the general practitioner, and not be left solely in the hands of specialists, who are often not consulted until the patient has become aware of some serious disease. The book is divided into three sections dealing with emergencies, subacute abdominal disease and chronic diseases. Methods of examination and the interpretation of symptoms form the main themes, and every type of disease is aptly illustrated by examples taken from the author's own practice. At the end of the book are short sections dealing with the scope and general results of abdominal operations and the after-care of the patients. These might well have been longer.

The Crippled Hand and Arm. By CARL BECK, M.D. Pp. xi., 243. London: J. B. Lippincott Co. 1925. Price 30s. net. —The book is nicely printed and illustrated, and it deals with a subject of great importance. A hand or arm crippled by injury or disease is a terrible disaster, and the restoration of its function is of the utmost importance both to the individual and to the community at large. The author's methods of effecting this are ingenious, and will repay study. Before the reader can grasp them, however, study will undoubtedly be required, for the book is written in English so faulty and a

style so obscure that the reviewer has often been tempted to cast it aside in despair. In his opinion it can never obtain any circulation in this country till it is adequately translated and more lucidly written.

Synopsis of Medicine. By H. LETHEBY TIDY, M.A., M.D., B.Ch. (Oxon.), F.R.C.P. (Lond.). Fourth edition. Pp. xv., 1,000. Bristol: John Wright & Sons Ltd. 1925. Price 21s. net.—The fourth edition of this valuable synopsis contains among its changes an extensively re-written chapter on Diabetes Mellitus, dealing fully with the treatment of this disease by Insulin, and practically new articles on Botulism, Visceroptosis, Hæmatoporphyrinuria, Infarction of the Lung, Primary Purpura, and Acholuric Jaundice. There are important alterations too in the chapters on Gall-stones and Bronchial Asthma. Blood Diseases of Childhood form the subject of a new chapter. There are other alterations of a minor character, but they all serve to maintain the high position which this *Synopsis of Medicine* already holds as an up-to-date guide and epitome. We have few criticisms to offer, but in the treatment of Diabetes Mellitus we are inclined to think that almost too much stress is laid on the " fasting " method. Barting's advice that the " starvation " period should be reduced to a minimum might have been mentioned as a view worthy of consideration, even though it conflicts with the views of Allen and Graham. Taken as a whole, Tidy's *Synopsis* fully deserves its popularity among practitioners and students.

A Synopsis of Surgery. By ERNEST W. HEY GROVES, M.S., M.D., B.Sc. (Lond.), F.R.C.S. (Eng.). Seventh edition. Pp. viii., 671. Bristol: J. Wright & Son Ltd.—This thoroughly up-to-date edition will still further enhance the reputation of this unrivalled and complete surgical hand-book. The general arrangement is unaltered, but there is added a wealth of the latest information in the present publication. Certainly, in the space allotted to them, it would be hard to better the chapters on biliary surgery and the acute abdomen, whilst the instructive scheme for testing urinary function marks a real advance as a scientific gauge of bodily function, and is superior to the loose handling this modern subject receives in the larger text-books. The text is illuminated by numerous drawings and diagrams which are a new and notable addition. Most comprehensive is the series of illustrations representing modern methods of dealing with the fractured femur. A chapter of clear diagrams of well-chosen surface markings make an attractive finish to a fine work. Certainly *A Synopsis of Surgery* by Hey Groves starts the student on the right road for the summit of surgery.

Artificial Sunlight and its Therapeutic Uses. By FRANCIS HOWARD HUMPHRIS, M.D. (Brux.), F.R.C.P. (Edin.). Second edition. 1925. Pp. xvi., 203. Oxford Medical Publications. Price 8s. 6d.—The second edition of this excellent treatise on the nature of "Light Treatment," and the type of diseases which may be benefited, follows hard after the first. This alone shows that in the widening interest taken in the various forms of lamps available for the production of therapeutic light the profession has welcomed a book which explains in simple language, without dogmatism or exaggeration, the types of lamp at present in use, and the kind of results which may be expected from them.

A Preliminary Report on the Treatment of Interstitial Keratitis. By R. LINDSAY REA, M.D., F.R.C.S. Pp. 32. London: H. K. Lewis & Co. Ltd. 1925. Price 2s. 6d.—This little book gives a brief account of ninety-one cases of interstitial keratitis treated by the author, with details of the methods employed. The cases were all syphilitic in origin. It is interesting to note, that of eight cases in which the Wassermann reaction was negative five gave a luetic reaction when tested by Lange's colloid gold test. The author warns observers against labelling such cases as tuberculous without having this test done. He makes out a strong case for treating these cases by injection with one or other of the arsenical preparations, followed by hyd. c. creta. He prefers novarsenobillion or, in the case of very young children, sulfarsenol, given intramuscularly if intravenous injections are not possible. He does not claim that the results are dramatic, but contends that, judged by the vision resulting after treatment, this method constitutes a real advance on the older methods of treatment. He mentions the significant fact that not one of the 64 new cases treated by him from the outset developed deafness. It is true that some writers say that treatment either by mercury or by the newer methods is useless in these cases. There is, however, an increasing amount of evidence in the literature that treatment by the newer methods is of value. We have seen a few cases markedly benefited by treatment with the arsenical preparations; too few to enable us to form a proper opinion as to their value generally, but enough to convince us as to their value in some cases at least. We shall, therefore, look forward to seeing a second edition of this book, based on a further series of cases. The book, which is well printed, contains an interesting frontispiece showing the contrast between a syphilitic child and her mother; also three useful plates, two of which are in colour. It is a book well worth reading.

Annals of the Pickett-Thomson Research Laboratory. Vol. I., Part 2. June, 1925. London: Baillière, Tindall & Cox.—The second part of these Annals contains the results of inquiries upon the preparation of high-class nutrient media for germs which are difficult to grow, upon bacterium pneumosintes, the bacteriology of the respiratory tract in cases of influenza, measles, etc., with the discovery of six new species of organisms and the classification and identification of germs by micro-photography. The whole of the work has been carried out by Robert and David Thomson. It evidences a mass of untiring energy and ingenuity. The authors have paid special attention to the value of media prepared from testicular tissues, and have investigated the characters and usefulness of various blood preparations. Among the latter they employed sterile filtered blood which had been allowed to putrefy, viz. had been changed in character by the action of bacteria. The result was so startling that it is suggested that the products of sepsis entering the blood from decayed teeth or from intestinal toxæmia go to favour the suitability of the living body as a host for such dangerous organisms, and render the individual more susceptible to attacks by them. There is a good account of the bacterium pneumosintes and allied respiratory organisms. It may be of interest to the general reader to learn that it sometimes requires three months' daily careful nursing of cultures before the specific organism can be isolated and grown in pure culture by itself. In Switzerland, especially during the winter sport season, a virulent form of epidemic fever often attacks the visitors. The local doctors consider it to be influenza. It is particularly rife in the Engadine, and has been termed Engadine fever. The germs present in the sputum from such cases belong to the pneumosintes group. There are, however, quite a number of bacteria demonstrable in respiratory diseases by use of these new methods of culture. Their actual pathogenetic properties are not yet determined. The volume closes with a number of micro-photographs of bacterial cultures at various stages of growth, and illustrations of mechanical devices for grinding tissues and bacteria.

A Text-Book for Nurses. By E. W. Hey Groves, M.D., B.Sc., M.S., F.R.C.S., and the late J. M. Fortescue Brickdale, M.A., M.D. (Oxon.), M.R.C.P. (Lond.). The Medical Section revised by J. A. Nixon, C.M.G., M.D. (Cantab.), F.R.C.P. (Lond.). Pp. xxx., 645. Third edition. 1925. Oxford Medical Publications. Price 20s.—The keynote of this, the third edition of this popular book, is contained in a sentence in the original Preface, which runs, "The chief aim . . . is to enable the nurse to understand the principles underlying the Medical and

Surgical treatments which it is her duty to assist in carrying out." In these days of increased theoretical teaching there is, without doubt, great danger that the nurse may learn her work parrot fashion, and this book is an excellent antidote to that danger. The descriptions are clear, the reasoning simply set out, and the letterpress and illustrations are both excellent. It is unusual to find Anatomy, Physiology, the description and treatment of disease or injury, and a comprehensive chapter on Hygiene, all contained in one book; it is certainly, from the point of view of teachers of nurses and of the nurses themselves, one of the most convenient publications of recent times. By what seems to be a curious error, the heading of each left-hand page is "Text-book of Nursing," a description which is inaccurate.

Practical Chiropody. By E. G. V. RUNTING, F.I.S.Ch. Pp. ix., 164. London: The Scientific Press Ltd. 1925. Price 5s. net.—Painful affections of the feet are among the commonest of complaints in civilised races. They cause great disability, and it is small wonder that medical advice is often sought with a view to obtaining relief. Practical Chiropody is a small book, on the treatment of corns, warts, ingrowing toe-nail, etc. It is simply written, and is evidently primarily intended for the benefit of chiropodists, but the general practitioner may pick up many useful hints from its perusal. If he knows how to cure a painful corn he will be certain of many grateful patients.

C.M.B. Examination Questions and Model Answers. A Handbook for Nurses entering for the Central Midwives' Board Examination, with Abridged Rules. Second edition. Pp. 150. London: The Scientific Press Ltd. 1925. Price 1s. 6d. net.—A very excellent little text-book, invaluable to those nurses going up for their C.M.B. examination.

Gynæcology for Nurses and Gynæcological Nursing. By COMYNS BERKELEY, M.A., M.D., M.C. (Cantab.), F.R.C.P. (Lond.), M.R.C.S. (Eng.). Pp. xi., 364. London: The Scientific Press Ltd. 1925. Price 7s. 6d. net.—A useful book of reference for those nurses who specialise in gynæcological nursing, but much too full for the needs of nurses taking the General Nursing Council examination. A large amount of midwifery teaching is included, and in consequence the book would be useful for the C.M.B. nurse both before and more especially after she has obtained her certificate.

Canned Foods in relation to Health. (Milroy Lectures, 1923.) By WILLIAM G. SAVAGE, B.Sc., M.D. (Lond.), D.P.H. Pp. vi., 146. Cambridge: University Press. 1923. Price 8s. 6d. net,

—Dr. Savage has condensed a very large scattered literature and the results of his own investigations into a reasonably small volume. He deals with the chemical and bacteriological contaminations and the processes of canning chiefly, but changes occurring during maturation and notes on vitamin persistence are included. He also outlines methods for laboratory examination, and suggests means of control calculated to ensure greater purity. There is a bibliography. A greater knowledge on this subject is urgently needed. The poorer sections of the community subsist very largely on these preserved, ready-cooked foods. As they are relatively cheap, and save time and expense in preparation, we may expect that they will continue to be used. That diet is a great factor in the production of good or bad health is such a truism that it tends to be disregarded; by a slight variation in the diet bees can manufacture neuters or queens at will. It may well be that diet in man makes the difference between an A_1 and a C_3 individual. A point arises which does not appear to be treated: the question of the biological values of these prepared foods, if, as it would appear, this is not merely due to the vitamin content. Can we be assured that 100 calories of a preserved food is equal to 100 calories of the same fresh food? Also we are told that the danger of tin poisoning is trivial; proof that the continuous ingestion of minute amounts of tin is without any effect would be welcome. Dr. Savage is to be congratulated on his work, and it is hoped that research in this subject will continue.

A Text-Book of Pathology, General and Special. By J. MARTIN BEATTIE, M.A. (N.Z.), M.D. (Edin.), M.R.C.S., L.R.C.P. (Lond.), and W. E. CARNEGIE DICKSON, M.D., B.Sc., F.R.C.P. (Edin.). London: William Heinemann.—This well-known text-book is now published in one heavy volume; the text remains the same except for minor additions. One method of selecting a text-book of pathology from the standard works at present at the student's disposal is to weigh each and select the lightest. We believe that many students preferred this treatise in two parts as in the second edition, and that the issue of a single weighty volume may drive them to purchasing a lighter and equally reliable book. From the nature of its inquiries, pathology will always remain the most difficult subject in the curriculum, and the choice of a text-book, provided its teaching is reliable, as that of Beattie and Dickson assuredly is, is a matter of taste. We frequently hear students complaining that, having bought a pathological text-book, they cannot read it at all or they do not read it easily. We would counsel them to read the same subject in this and in, say, three other standard text-books before adopting any book as their

guide, philosopher and friend. The interesting speculations and excellent diagrams of MacCallum will appeal to some, the conciseness of Muir to others, and the comforting, non-committal nature of the discussion and the careful recording of fact of Beattie and Dickson to others. Some of the plates in this edition are showing signs of wear.

Text-Book of Surgical Pathology. By C. JENNINGS MARSHALL, M.D., M.S. (Lond.), F.R.C.S. (Eng.), and ALFRED PINEY, M.D., Ch.B. (Birm.), M.R.C.P., M.R.C.S. Pp. vii., 469. London: Edward Arnold & Co. Price 21s. net.—The authors of this book of about 500 pages have set themselves the task of correlating "embryology, anatomy, pathology and clinical observation" in order to help the student of surgery. They have succeeded in compressing into these 500 pages a large mass of information which otherwise could only be obtained by the use of several text-books. The descriptions follow a strictly clinical sequence. Much space is devoted to morbid anatomy and embryology, and the student is kept closely in touch with clinical surgery. The pathological author has not allowed himself to speculate at any length on "the causes of things": microscopic descriptions are short and, to the inquiring mind, disappointing. The style is necessarily rather telegraphic, and far from restful. Many of the illustrations, especially those dealing with diseases of bone and the line diagrams illustrating development, are very good; others, however, are disappointing, and a few are misleading. It is obviously difficult to provide the modern over-worked medical student with a volume which will be, at the same time, interesting to read and useful for examinations, well illustrated and cheap; and there is no doubt that for students preparing for the higher surgical examinations, and for those whose interests and ambitions are mainly surgical, this book will prove of considerable use, but there is more of interest in pathology as applied to surgery than this book indicates.

The Pathology of Tumours. By E. H. KETTLE, M.D., B.S. (Lond.). Second edition. Pp. viii., 285. London: H. K. Lewis & Co. Ltd. 1925. Price 12s. 6d. net.—This book can be cordially recommended to the student who wishes to read in the compass of 275 well-written pages the best complete account of the pathology of tumours written by an English pathologist. The illustrations are wonderfully clear, the text concise and easy to read, while this edition is enriched by new illustrations of naked-eye appearances. British pathology should be proud of the book.

Editorial Notes.

The "Bristol Medico-Chirurgical Journal" for 1926

and onwards will have a somewhat larger page, and will be printed in a larger type on a faced paper. We feel sure that our readers will appreciate the better presentation of our subject-matter, together with a more pleasing cover. The Editorial Committee have had these improvements under consideration for some time, but hitherto the difficulties involved in publication and the increased cost of labour and paper have delayed their adopting these much-desired alterations and improvements; while throughout the Great War it was only possible to continue publication at all by the exercise of rigid economy.

* * * * *

Bristol Medical School Annual Dinner.

On December 3rd Professor E. W. Hey Groves presided at a large gathering of past and present students, well supported by the members of the clinical teaching staff. The guest of the evening was Sir Berkeley Moynihan, Bart., K.C.M.G., on whom last summer an Honorary Degree was conferred by the Council and Senate of the University of Bristol. After the Royal Toast the Chairman proposed the toast of the guest of the evening.

He said that he was a proud and happy man to have been chosen as President and to have the privilege of proposing the health of one who for many years had been his ideal as a surgeon, teacher and orator. He asked that they should drink his health because of the great and wonderful influence Sir

Berkeley had upon surgical thought, teaching and practice. The President said that Sir Berkeley was responsible for founding three great movements: the Surgical Club, the *British Journal of Surgery* (published and edited in their city) and the Association of Surgeons.

Sir Berkeley's influence during the war was referred to as being of a unique character; as a provincial surgeon he was chosen by the War Office to be Chairman of the Consultants' Council, and did wonderful work, in association with Sir Robert Jones, in the organisation of the treatment of orthopædic surgery in the military world.

Speaking of art and religion, the President said that they had this in common. Art was an attempt to realise the ideal; religion was the worship of the ideal; and in this sense Sir Berkeley was the most religious man he knew. The President spoke with pride of the conferment of the honorary degree of Doctor of Laws of Bristol University on Sir Berkeley, and said that already his advice had been sought in the matter of the clinical teaching of medicine and surgery. Concluding his remarks with a humorous reference to his unique position as a friend of Sir Berkeley's for fifteen years, yet still retaining his full proportion of internal organs (being careful to add that this was not said in any boasting spirit), the President called upon the company to drink to the health of their guest.

Sir Berkeley Moynihan, who was greeted most warmly on rising to respond, remarked that Mr. Hey Groves was the first of many people in all parts of the world who had ever made a speech about him that he felt was appropriate to the occasion, and he considered it so for several reasons. He realised that what a man did for himself and by himself mattered very little indeed. Books and articles, by the time they were in print, said Sir Berkeley, never seemed to represent one's self worthily, but rather made one feel great dissatisfaction with all one's literary efforts. It was still worse with the spoken word, he said, which might seem warm when uttered, but cold on the morrow if remembered at all.

What really counted were the things a man left behind him in the heart, in the mind and in the work of others. He told how, in his early days, he had set himself a certain ideal.

Ideals were not for attainment but for pursuit, and he had chased an ideal in his surgical life, which was that he should leave behind him in his own hospital men better than himself to carry on the work after he had done.

Sir Berkeley spoke in high praise of Mr. Hey Groves's achievements, particularly in connection with the *British Journal of Surgery*, which he had been told, in countries other than his own, was the best surgical journal to-day. He referred to the publishers (Messrs. J. Wright & Sons), whose centenary was being celebrated this year, and remarked that he would like to thank Mr. Wright for his share in the *British Journal of Surgery*. As an honorary graduate of the University of Bristol, Sir Berkeley said he was anxious to meet his confrères, and glad of this opportunity of doing so.

Sir Berkeley also paid high tribute to Mr. Greig Smith, of the Bristol School, as the greatest surgeon of his day. Speaking of the school curriculum Sir Berkeley urged the necessity for postgraduate work, and the great value of a research scholarship (for which he was clamouring in Leeds) in keeping the graduates at least two or three years after qualification, which he considered to be a great need. He concluded his remarks with greetings from Leeds, and drank to the health of the Bristol Medical School.

Mr. W. S. V. Stock, replying to the toast, expressed in a few well-chosen words the thanks of the Bristol Medical School and their appreciation of Sir Berkeley's acceptance of the invitation to be the Guest of the Evening. He spoke with pride of the early days of the Bristol Medical School, the foundation of which was, in fact, the foundation of the Bristol University of to-day.

Mr. Jacomb jointly responded.

Mr. J. Drew Smythe proposed the health of the President.

Mr. Hey Groves suitably replied, and thereafter enjoined the company to proceed to the Spa Hotel. Here the wives of the staff of the Faculty of Medicine held a reception and dance, a most enjoyable ending to a highly successful evening.

The Library of the Bristol Medico-Chirurgical Society.

The following publications have been received since the publication of the list in October, 1925.

December, 1925.

Dr. Serge Voronoff (1)	1 volume.
Medical Officer of Health, Bristol (2)	1 ,,
Rockefeller Foundation (3)	1 ,,
London School of Hygiene and Tropical Medicine (4)	1 ,,

Unbound periodicals have been received from Mr. Hey Groves.

THE ONE HUNDRED AND FOURTEENTH LIST OF BOOKS.

The figures in round brackets refer to the figures after the names of the donors. The books to which no such figures are attached have either been bought from the Library Fund or received through the *Journal*.

Andrewes, F. W., and others. *Diphtheria, its Bacteriology, Pathology, and Immunology* (Medical Research Council) 1923

Beck, C... .. .. *Crippled Hand and Arm* 1925

Collected Addresses and Laboratory Studies, Vol. I. .. .. .. (4) 1925

Girdlestone, G. R. *Diagnosis and Treatment of Tuberculosis of the Hip* 1925

Greenfield, J. G., and Carmichael, E. A. *Cerebro-Spinal Fluid in Clinical Diagnosis* 1925

Hare, H. A., and Appleman, L. F. *Progressive Medicine*, Vols. 1—4 1923
Progressive Medicine, Vols. 2, 4 1924
Progressive Medicine, Vols. 1—3 1925
Henry, G. W. .. *Essentials of Psychiatry* 1925
Kenwood, H. R. .. *Public Health Laboratory Work* (*Chemistry*) 8th Ed. 1925
Kettle, E. H. .. *Pathology of Tumours* .. .. .. 2nd Ed. 1925
Methods and Problems of Medical Education (3rd Series) .. .. (3) 1925
Miles, A. .. .. *Guide to the Study of Medicine* 1925
Morison, R. .. .. *Abdominal and Pelvic Surgery for Practitioners* 1925
Morten, Honnor .. *Nurses' Dictionary* .. .. 11th Ed. 1925
Myers, J. A. .. .. *Vital Capacity of the Lungs* 1925
Norton, Felicie .. *Coaching Manual for Midwifery Students* .. 1925
Page, C. M., and Bristow, W. R. *Treatment of Fractures and Dislocations in General Practice* .. 2nd Ed. 1925
Paul, F. T. .. .. *Selected Papers, Surgical and Pathological* .. 1925
Ross, J. M. .. .. *Post-mortem Appearances* 1925
Voronoff, Serge .. *Étude sur la Vieillesse et le Rejeunissement* (1) 1926
Werner, L. [Ed.] .. *Swanzy's Handbook of Diseases of the Eye* 13th Ed. 1925

TRANSACTIONS, REPORTS, JOURNALS, ETC.

British Journal of Surgery, October 1925
Medical Annual—General Index, 1915—1924 1925
Guy's Hospital Reports, Vol. 75, No. 4, October 1925
St. Thomas's Hospital Reports, Vol. 47 1925
Annual Report of the Medical Officer of Health, Bristol, 1924 (2) 1924

Local Medical Notes.

EXAMINATION RESULTS.

UNIVERSITY OF BRISTOL.—Students of the University have recently passed the following examinations :—

M.B., Ch.B.—*First Examination (Pass) :* T. Evans, A. M. B. Walker. *Second Examination, Part I. (Pass) :* J. S. Adamson, A. C. Price, N. L. Price. *In Elementary Anatomy only :* H. F. C. Corfield, R. M. Hickman, D. A. C. Price. *Second Examination (Pass) :* T. A. Barnabas, B. J. Boulton, E. Jacomb, R. D. Jenkins. *Final Examination, Part I. (Pass), including Forensic Medicine and Toxicology :* H. M. Aldwinckle, C. France-Hayhurst, F. W. T. Hughes, E. May, R. E. Satchwell, S. P. Taylor. *Final Examination, Part II. (Pass) (completing examination) :* D. H. Beatson, H. W. Brassington, B. F. V. Dawkins, C. H. Durnford, W. S. Ormiston, M. E. J. Packer, Yolande de la Pasture, C. P. Porter, T. W. Ware. *In Group II. (completing examination) :* E. E. Benson, M. P. Posthuma, K. M. Willmore. *In Group I. (completing examination) :* C. F. R. Killick. *In Public Health only (completing examination) :* C. T. Hyatt, H. J. Satchwell.

M.D.—F. J. Hector, M.B., Ch.B., by dissertation on " Some Effects of Diphtheria upon Carbohydrate Metabolism."

L.D.S.—J. Partridge. *First Examination, Pass in Physics (completing examination) :* E. R. Carpenter, T. A. Satchwell. *In Physics only :* A. N. Moon. *In Chemistry only :* B. J. Shapland. *In Anatomy and Physiology (completing examination):* P. H. Slater, E. J. Tanner, G. W. Vowles, P. J. Whiteman, A. E. Wilkins. *In Dental Anatomy only :* A. L. Gilchrist, L. W. G. Jones. *Final Examination (Pass) :* C. S. Cossham, S. Phillips. *Second Examination (Pass) :* R. W. Pinniger. *In Dental Mechanics (completing examination) :* A. M. Thoseby. *In Dental Mechanics and Dental Metallurgy (completing examination) :* C. S. Wilde. *In Dental Metallurgy and Dental Materia Medica only :* J. H. Edwards, A. L. Gilchrist.

B.D.S.—*Second Examination, Pass in Anatomy, Physiology and Histology (completing examination) :* W. M. Evans.

D.P.H.—*Pass, in Part II. (completing examination):* F. P. Mackie, N. A. M. Rodger.

CONJOINT BOARD.—M.R.C.S., L.R.C.P. (*completing examination*).—M. E. Drew, S. P. Taylor.

L.D.S., R.C.S.—*First Examination, Part I., Pass (Mechanical Dentistry):* W. Woolley. *Part II. (Dental Metallurgy):* J. F. V. Sellin. *Part III. (b) (Dental Anatomy):* A. J. Batten, J. F. V. Sellin, R. G. J. Tovey.

SOCIETY OF APOTHECARIES OF LONDON.—*Pass (in Midwifery):* B. Davis, P. H. Knowles, M. E. G. Wilkinson. *In Anatomy:* T. A. Barnabas. *In Surgery:* M. E. G. Wilkinson. *In Forensic Medicine:* W. O. H. Evans, M. E. G. Wilkinson, P. H. Knowles. *In Biology:* G. Smith, I. M. Williams. *In Medicine:* P. H. Knowles, M. E. G. Wilkinson. *In Surgery:* P. H. Knowles, W. O. H. Evans. Diploma of the Society was granted to M. E. G. Wilkinson.

Miss C. I. Ham has been appointed Temporary Demonstrator in Physiology for the Autumn and Spring Terms of the current session.

Dr. S. Hardy Kingston has been appointed as Assistant Lecturer in Public Health.

WEDDING.—SALISBURY—WRIGHT.—On December 9th, at St. Mary's Church, Broughton, Lincs., Walter Salisbury, M.S., M.D. Lond., F.R.C.S. Eng., younger son of Mr. and Mrs. F. G. Salisbury, of 4 Durdham Park, to Constance Mary, only child of Mr. and Mrs. William Wright, of Broughton Vale.

Bristol Royal Infirmary. Opening of New Wing of the Nurses' Home.—On Wednesday, December 9th, 1925, an interesting ceremony took place at the Bristol Royal Infirmary, when the New Wing of the Nurses' Home was opened by Dame Mary Monica Wills, whose late husband, Mr. H. H. Wills, so generously gave a large sum of money to the Royal Infirmary for that purpose. Her Grace The Dowager Duchess of Beaufort, who is the President of the Ladies' Needlework Guild, and has been associated with the Royal Infirmary for many years, had consented to take the Chair, but when the time came was unfortunately unable to do so owing to illness. Her place was taken, almost at a moment's notice, by her daughter-in-law, Her Grace the Duchess of Beaufort, who with the utmost kindness for the purpose put off an engagement in London.

Before proceeding to the New Dining Hall, Her Grace the Duchess of Beaufort called upon Dame Mary Monica Wills to open the doors, whereupon Sir George Oatley handed her a

golden key with which to perform the ceremony, and Bishop Clifford entered the building saying: "Peace be upon this House."

On the platform in the New Dining Hall were Her Grace The Duchess of Beaufort, the Lord Mayor and Lady Mayoress, Bishop Clifford, Dame Mary Monica Wills, Colonel P. G. Robinson, D.S.O. (the President), Alderman F. Sheppard (the Chairman), Mr. Kossuth Robinson, Mr. Richardson Cross, Mrs. Harford, Sir George Oatley (the Architect), Miss Baillie, the Rev. H. H. Hawkins (the Chaplain), Mr. Ellis Smith (the Secretary), Miss E. E. P. MacManus (the Matron).

In a thoughtful speech Colonel Robinson reviewed the past, present and future requirements of the Bristol Royal Infirmary, and explained that with each expansion of the number of beds available for patients it was necessary to provide quarters for the Nurses who were to nurse the additional patients. The splendid Dining Hall in which the company were assembled will hold two hundred persons at a sitting. Excellent pantries are provided, and the kitchen department is being entirely remodelled on modern lines with steam, gas and electric kitchen apparatus, including a washing-up machine and a potato peeler, thus completing one of the most up-to-date Nurses' Homes in the West of England.

Medals were presented to Miss Baillie, the late Matron, and to some of the nurses. The whole party made a tour of inspection round the building, returning for tea to the Dining Hall, where the Sisters and Resident Doctors made admirable hosts.

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